

Serial No.: 09/904,692
Amendment Dated: November 18, 2004
Reply to Office Action of August 18, 2004
Express Mail Label No. EV 514700240 US

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the above-captioned patent application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) An incubator as recited in Claim 60 4, wherein said first array and said at least second arrays are supported on a ~~including~~ a ring assembly having a plurality of circumferentially disposed ~~load stations~~ sample element receiving areas.

3. (Original) An incubator as recited in Claim 2, wherein said ring assembly includes at least two concentric ring components, each of said ring components being supported for rotation about a central axis of said incubator housing.

4. (Currently Amended) An incubator as recited in Claim 3, wherein said at least one first drive ~~means~~ mechanism ~~includes means for driving said~~ rotatably driving drives said ring assembly about said central axis.

5. (Currently Amended) An incubator as recited in Claim 4, wherein said at least one second drive ~~means~~ mechanism ~~includes means for~~ selectively radially moving moves said at least one ~~test~~ sample element relative to said central axis ~~from at least one load position between said arrays of sample element receiving areas~~.

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6. (Currently Amended) An incubator as recited in Claim 5, wherein at least one of said arrays includes at least two adjacent sample receiving stations disposed in said second horizontal direction, said at least one second drive means mechanism includes means for being capable of selectively radially moving said at least one test sample element between at least said at least two adjacent test receiving areas a first load position and a second load position of a load station stations.

7. (Currently Amended) An incubator as recited in Claim 6, including wherein said at least one read station is disposed in relation to one of said ring components, such that said at least one first drive mechanism means can rotate one load position sample element receiving station of each of said load stations at least one array into a read position, said at least one second drive means mechanism enabling at least one other load position of at least one of said load stations a sample element to be selectively and radially moved into the read position.

8. (Original) An incubator as recited in Claim 7, including a dump station radially adjacent said read station.

9. (Currently Amended) An incubator as recited in Claim + 7, wherein said read station includes a device capable of detecting an optical property of a test sample element.

10. (Original) An incubator as recited in Claim 9, wherein said device is a reflectometer.

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11. (Currently Amended) An incubator as recited in Claim 4, wherein said at least one second drive mechanism including third drive means for selectively and radially removing removes at least one ~~test~~ sample element from ~~a lead station~~ of said ring assembly for later reinsertion therein.

12. (Currently Amended) An incubator as recited in Claim + 7, wherein said read station includes a device capable of measuring an electrical property of a ~~test~~ sample element.

13. (Original) An incubator as recited in Claim 12, wherein said device is an electrometer.

14. (Currently Amended) An incubator as recited in Claim 1, wherein said ~~test~~ sample elements include a plurality of slide elements, each said slide element having a volume of a test patient sample fluid metered thereupon.

15. (Currently Amended) An incubator as recited in Claim 6, wherein said at least one second drive including mechanism includes shuttle means for radially shuttling ~~test~~ sample elements into said incubator housing.

16. (Currently Amended) An incubator as recited in Claim 15, wherein said shuttle means is circumferentially disposed immediately adjacent said at least one second drive means mechanism.

17. (Currently Amended) An incubator as recited in Claim 15, wherein said shuttle means includes a reciprocating pusher blade disposed in relation to said incubator housing to shuttle at least one ~~test~~ sample element into at least one ~~lead position of a lead station~~ sample element receiving station.

18. (Currently Amended) An incubator as recited in Claim 15, wherein said shuttle means is capable of shuttling at least two radially disposed ~~test sample elements~~ into ~~a load station~~ test sample receiving area simultaneously.

19. (Currently Amended) An incubator as recited in Claim 15, including a supply of stacked slide elements, said shuttle means being disposed adjacent to a slide element supply.

20. (Currently Amended) An incubator as recited in Claim 3, wherein said at least one first drive mechanism means includes a belt drive wrapped about the periphery of at least one ring component.

21. (Currently Amended) An incubator as recited in Claim 3, wherein said ring components of said ring assembly are independently driven relative to one another by said second at least one first drive means mechanism.

22. (Currently Amended) An incubator as recited in Claim 4, wherein at least two load positions of a ~~load station~~ sample element receiving area differ in height relative to one another.

23. (Withdrawn) An incubator for use in a clinical analyzer, said incubator comprising:

an incubator ring assembly supported for rotation about an axle defining an axis of rotation, said ring assembly including a plurality of circumferentially defined load stations, each said load station having at least two load adjacent radial load positions for receiving test samples;

at least one read station for reading at least one test sample at a read position; first drive means operatively connected to said incubator ring assembly for rotating said ring assembly about said axis of rotation, said at least one said read

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station being disposed such that a first plurality of circumferentially disposed load positions can be selectively aligned with said read position; and

second drive means for radially moving a test sample from at least one load position of a load station into the read position.

24. (Withdrawn) An incubator as recited in Claim 23, wherein said second drive means includes shuttle means for shuttling at least one test sample into a load station of said incubator ring assembly.

25. (Withdrawn) An incubator as recited in Claim 24, wherein said shuttle means can selectively shuttle at least two radially adjacent test samples into said incubator ring assembly simultaneously.

26. (Withdrawn) An incubator as recited in Claim 23, wherein at least one test station includes a device capable of measuring an optical property of a test sample.

27. (Withdrawn) An incubator as recited in Claim 26, wherein said device is a reflectometer.

28. (Withdrawn) An incubator as recited in Claim 23, including means for independently controlling the temperature and humidity of each test sample loaded into said incubator ring assembly.

29. (Withdrawn) An incubator as recited in Claim 28, wherein said independent temperature and humidity control means includes a slide cap disposed at each load position.

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30. (Withdrawn) An incubator as recited in Claim 23, wherein at least one test station includes a device capable of measuring an electrical property of a test sample.

31. (Withdrawn) An incubator as recited in Claim 30, wherein said device is an electrometer.

32. (Withdrawn) An incubator as recited in Claim 23, including third drive means for selectively removing at least one test sample from said incubator ring assembly for subsequent reinsertion therein.

33. (Withdrawn) An incubator as recited in Claim 20, wherein said incubator ring assembly includes at least two concentric rings, each of said concentric rings being coupled to said first drive means.

34. (Withdrawn) An incubator as recited in Claim 27, wherein said reflectometer is disposed in relation to the load positions of an inner ring of said incubator ring assembly.

35. (Withdrawn) An incubator as recited in Claim 31, wherein said electrometer is disposed in relation to the load positions of an outer ring of said incubator ring assembly.

36. (Withdrawn) An incubator as recited in Claim 23, wherein adjacent radial load positions of at least one load station differ in height relative to one another.

37. (Withdrawn) An incubator as recited in Claim 24, including a dump station radially disposed in relation to said read station.

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38. (Withdrawn) An incubator as recited in Claim 37, wherein said second drive means transfer fresh test samples into empty load positions of said incubator after test samples have been dumped.

39. (Withdrawn) A clinical analyzer comprising:
an analyzer housing; and
an incubator disposed within said analyzer housing, said incubator including:
at least one load station for accommodating at least one test sample;
at least one read station;
first drive means for driving at least one of said at least one test sample and said load station in a first direction, said at least one load station having at least two load positions arranged in a second direction, said second direction being substantially orthogonal to said first direction; and second drive means for selectively driving at least one of said load positions and said at least one test sample accommodated therein with respect to said read station for testing said at least one test sample.

40. (Withdrawn) A clinical analyzer as recited in Claim 39, wherein said incubator includes a ring assembly including at least two concentric rings, each of said rings being supported for rotation about a primary axis, said first drive means including means for rotating said incubator ring assembly and in which each ring includes a plurality of circumferentially disposed load positions.

41. (Withdrawn) A clinical analyzer as recited in Claim 40, wherein said second drive means includes first shuttle means for radially shuttling at least one test sample between radial load positions of said incubator ring assembly.

42. (Withdrawn) A clinical analyzer as recited in Claim 39, including a dump station radially adjacent at least one read station.

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43. (Withdrawn) A clinical analyzer as recited in Claim 41, wherein said first shuttle means can selectively shuttle a test sample after said test sample has been read at said read station.

44. (Withdrawn) A clinical analyzer as recited in Claim 41, including second shuttle means for shuttling at least one test sample into a load station of said incubator ring assembly.

45. (Withdrawn) A clinical analyzer as recited in Claim 44, wherein said second shuttle means can selectively shuttle at least two test samples into a load station of said incubator simultaneously.

46. (Withdrawn) A clinical analyzer as recited in Claim 44, including a slide supply for supplying slide elements to said incubator, said slide supply being operatively connected to said second shuttle means.

47. (Withdrawn) A clinical analyzer as recited in Claim 46, including metering means for dispensing a volume of a test sample onto at least one slide element prior to shuttling said slide element into said incubator.

48. (Withdrawn) A clinical analyzer as recited in Claim 47, wherein said metering means is disposed in relation to said slide supply so as to meter a volume of test sample onto a slide element to be shuttled by said second shuttle means into a load position of a load station within said incubator.

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49. (Withdrawn) A clinical analyzer as recited in Claim 40, including means for selectively removing at least one test sample from said incubator, said clinical analyzer further including wash means for washing said at least one selectively removed test sample, said incubator further including means for loading said at least one washed test sample back into said incubator ring assembly.

50. (Withdrawn) A clinical analyzer as recited in Claim 39, wherein said at least one read station includes a device capable of measuring an optical property of a test sample.

51. (Withdrawn) A clinical analyzer as recited in Claim 50, wherein said device is a reflectometer.

52. (Withdrawn) A clinical analyzer as recited in Claim 39, wherein said at least one read station includes a device capable of measuring an electrical property of a test sample.

53. (Withdrawn) A clinical analyzer as recited in Claim 52, wherein said device is an electrometer.

54. (Canceled)

55. (Currently Amended) A method as recited in Claim ~~54~~ 61, in which said incubator includes a ring assembly, said ring assembly including at least two concentric ring components defining a plurality of circumferentially disposed ~~lead stations~~ sample element receiving stations wherein the first driving step includes the step of rotating said ring assembly about a central axis.

56. (Currently Amended) A method as recited in Claim 55, including the steps of:

reading a first ~~test~~ sample element which has been rotated into alignment with said read station;
radially driving an adjacent second ~~test~~ sample element into alignment with said read station; and
reading said second ~~test~~ sample element.

57. (Currently Amended) A method as recited in Claim 56, including the step of dumping each of said ~~test~~ sample elements from said ring assembly after said reading steps.

58. (Currently Amended) A method as recited in Claim 57, including the step of loading new ~~test~~ sample elements into said ~~load station~~ after said dumping step.

59. (Currently Amended) A method as recited in Claim 58, wherein said loading step includes the step of simultaneously radially shuttling at least two adjacent test sample elements into a said ~~load station~~ sample element receiving area.

60. (New) An incubator for use in a clinical analyzer, said incubator comprising:
an incubator housing;
a first array of sample element receiving areas;
at least one second array of sample element receiving areas, each of said first and said at least one second array being disposed within said incubator housing wherein each sample element receiving area includes at least one sample element receiving station sized for retaining a sample element thereupon;
at least one first drive mechanism for selectively driving at least one of said

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first and said at least one second array of sample element receiving areas in a first horizontal direction;

at least one second drive mechanism for driving at least one said sample element between said arrays in a second horizontal direction which is orthogonal to said first horizontal direction.

61. (New) A method of incubating and reading test samples for a clinical analyzer, said incubator comprising at least one first array of sample element receiving areas and a second array of sample element receiving areas, each of said sample element receiving areas including at least one sample element receiving station sized for accommodating at least one sample element, said incubator further comprising at least one read station wherein each of said arrays and said at least one read station are disposed within an incubator housing, the method comprising the steps of:

driving at least one of said arrays of sample element receiving areas in a first horizontal direction, wherein the sample element receiving areas of each array are disposed in a second horizontal direction, said second horizontal direction being substantially orthogonal to said first horizontal direction; and

selectively driving at least one said sample element in the second horizontal direction relative to said read station for testing said at least one sample element, wherein said first and second horizontal directions are each provided on a common horizontal plane.